REMARKS

The foregoing amendments and these remarks are in response to the Office Action dated September 25, 2006. This amendment is timely filed.

At the time of the Office Action, claims 1-8 were pending in the application. Claim 1 was withdrawn from consideration . In the Office Action, claims 2-8 were rejected under 35 U.S.C. §112, second paragraph. Claims 2-8 were rejected under 35 U.S.C. §103(a). The rejections are discussed in more detail below.

I. Rejection under 35 U.S.C. §112, second paragraph

Claims 2-8 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate corrections have been made to the claims, drawings and the specification. Accordingly, withdrawal of the rejection is respectfully requested.

II. Claim Rejections on Art

Claims 2, 4, 5, 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,200,580 to Pruss et al. ("Pruss"), U.S. Patent No. 2,366,917 to Levine ("Levine"), or U.S. Patent No. 2,283,166 to Buell et al. ("Buell"), each in view of U.S. Patent No. 4,465,594 to Laak ("Laak"), U.S. Patent No. 4,427,548 to Quick, Jr. ("Quick"), U.S. Patent No. 2,992,986 to Ingram ("Ingram") or U.S. Patent No. 6,123,840 to Suzuki et al. ("Suzuki"). Claims 2-5, 7 and 8 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,179,374 to Savage et al. ("Savage") in view of Laak, Quick, Ingram or Suzuki. Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over the references as applied to claim 2 above, and further in view of U.S. Patent Publication No. 2003/0209501 to Leung ("Leung") or U.S. Patent No. 6,524,447 to Carmignani et al. ("Carmignani").

Applicant respectfully traverses these rejections. Nevertheless, Applicant has amended claim 1 to more clearly define the invention that is claimed.

A. Cited References

(1) Savage discloses a sewage treatment plant including an enclosed facultative unit for liquid-mixing raw sewage and sewage that is recycled after partial processing in the plant, in

which that enclosed facultative unit has an effluent conduit for discharging the liquid mixture and an influent conduit for receiving the raw sewage. Also, the sewage treatment plant includes an enclosed columnar-oxidizing unit comprising a deep bed filter to receive the effluent from the facultative unit at a location where the effluent will percolate downwardly there through.

(2) Pruss discloses a process for forcing an oxygen-containing gas into influent sewage such that the sewage can be processed in a closed container filled with broken stone or porcelain rings to purify the liquid and malodorous gasses given off by the liquid.

(3) Levine discloses a method and apparatus of treating sewage or other waste material, which performs in such a way that the raw or unfiltered sewage unfiltered at a loading of at least 2000 pounds B.O.D. is applied to a filter bed formed of coarse-grained materials with a particle size of 3/2-4 inches. This processed result is then processed by a second filter formed of a finer-grained material with a particle size of 1-3 inches.

(4) Buell discloses a method that treats sewage or other waste material using a trickling filter at an interval of 2-30 minutes between the sewage feed and the sewage-feed rest.

(5) Laak discloses a sewage treatment system where black water is segregated from grey water. The segregated water is fed to separate septic tanks. The black water is received by a nitrification filter composed of alternating layers of sand and stone. An atmospheric vent means provides atmospheric oxygen to the sand layers of the nitrification filter to achieve aerobic nitrification of a filtrate that is non-alkaline or slightly acidic, with a pH of less than 4. The grey water is received and treated by a denitrification filter, thereby improving the sewage treatment efficiency.

(6) Quick discloses a method of detoxifying aquarium water that is performed in such a way that water is removed from the aquarium. The removed water flows downward through a plurality of alternating layers of air and porous layers. Nitrification is caused by bacteria in the plurality of alternating layers of air and porous layers. The water is collected after it has passed through the layers. The collected water is returned to the aquarium.

(7) Ingram discloses a method of treating liquid waste material that allows the liquid waste material to pass downward through a plurality of filters aligned by height. Here, the liquid water material falls freely downward by gravity from the upper filter onto the next succeeding filter.

(8) Suzuki discloses an apparatus for treating organic wastewater that treats wastewater in such a way that a treating layer containing a microorganism carrier filters and aerobic-biologically treats the wastewater, and an auxiliary layer comprising foam glass grains passes the organic wastewater discharged from the treating layer.

(9) Leung discloses a water purifying apparatus including an ultraviolet illuminating means within a container with an inlet and an outlet, and a disinfectant core comprising a spiral-shaped plate coated with titanium dioxide.

(10) Carmignani discloses an apparatus and method of use of a semiconductor material for the photocatalytic degradation of organic and inorganic pollutants and microbiological contaminants in water. The photocatalytic reaction is performed by a light-emitting device providing light, with a wavelength of 365 nm, to remove the pollutants and contaminants from the water.

(11) JP 5-15887 discloses a water purification method in which purification material is laminated and arranged on the bottom of the water channels of the respective steps in a multi-step shape. The water is sucked to the upstream of a purification water channel which is zigzag-constituted downstream from upstream. The aerobic treatment of pond water is performed by utilizing the head of the purification water channel.

(12) JP 11-128969 discloses a purification-improving constituent to which porous grains are attached to increase the purifying potency of the microorganisms.

B. Discussion of claims

The wastewater treating apparatus defined in claim 2 can treat wastewater through natural aeration using a contact medium. The apparatus is configured to include a wastewater collection tank for collecting the wastewater, a biofilm contact reactor, a precipitator, and a wastewater circulation unit.

In addition, a hopper is configured in such a way that a plurality of nozzles (for spraying wastewater supplied from first and second circulation pipes) can be installed at the top of the hopper. A spray-control valve for adjusting the amount of spray of the wastewater can be installed at the bottom of the hopper, and a bypass unit penetrating through the hopper can be formed at a designated height. The hopper may further include a titanium reactor at its bottom. The titanium reactor of the collecting hopper can be configured to include a porous plate on

which a titanium thin film forms and ball-shaped structures with a diameter of 3-5 mm at the inside thereof, on which a thin titanium film forms.

The features of claim 2 are different from those of Laak, Quick, Ingram and Suzuki, which disclose a biofilm contact reactor of multi-stage structures. The features of claim 2 would not be easily derived from the teaching of these references. Also, the configuration elements of claim 2 are different from those of Pruss, Levine and Buell patents that disclose a treatment tank of a single layer. The features of claim 2 would not be easily derived from these references.

Therefore, claim 2 would not be derived by combining a treatment tank of a single layer disclosed in Pruss, Levine and Buell with a collecting tank, film treatment tank, and precipitator disclosed in Laak, Quick, Ingram and Suzuki.

Furthermore, the invention of claim 6 limits the titanium reactor, such that a porous plate forms a titanium thin film, and balls (with a diameter of 3-5 mm) are formed at the inside of the titanium reactor, in which the balls form a titanium thin film. Therefore, the configuration of claim 6 is quite different from that of Leung and Carmignani, which disclose a titanium dioxide coating. Also, claim 6 would not be easily invented by combining Leung and Carmignani patents with other cited references.

For the foregoing reasons, claim 2 is believed to define patentable subject matter, and to be in condition for allowance. Claim 6 is also believed allowable because of its dependence upon an allowable base claim, and because of the further features recited. Prompt issuance of a notice of allowance is thus respectfully requested.

III. Conclusion

Applicant has made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicant invites the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicants respectfully request reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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